



U.S. Fish & Wildlife Service - Midwest Region

Fisheries Program

fish lines

**Partners Program
Assists Arcadia Dunes**

**"If You Build it They
Will Come"**

**Service's Partners Fight
Invasive Species**

**The Fight Against
Asian Carp**

**Field Sampling with
Future Biologists**





U.S. Fish & Wildlife Service

Fisheries, Midwest Region

Conserving America's Fisheries

Partners for Fish and Wildlife Assists Arcadia Dunes

BY HEATHER RAWLINGS, ALPENA FWCO



Little bluestem and Indian grass showcasing their fall colors! Credit: USFWS

grasslands support a wide range of upland bird habitat and attract three state bird species of special concern: the grasshopper sparrow, northern harrier and western meadowlark. The sites are regularly monitored by the local Audubon Society, and are open to the public for hiking and bird viewing.

The northern 15-acre parcel was planted with warm-season grasses in 2013 and is now being prepped for the planting of forbs in the spring of 2015. Some work is required to get this site ready for the planting, such as removal of some encroaching shrubs and trees, spot-treatment of several invasive species such as spotted knapweed, mullein, and white sweet clover, and re-planting of the fire break to purely red clover. Fall is by far the best time to view native grasslands due to the explosion of color that the little bluestem, big bluestem and Indian grass provides. We look forward to viewing the grasslands again in 2015 following the spring forbs planting.

The Partners for Fish and Wildlife (Partners) Program has been working since 2011 with the Grand Traverse Regional Land Conservancy (Conservancy) and Designs by Nature to develop the eastern part of the Conservancy's Arcadia Dunes property into a 315-acre native grassland. Straddling the Manistee -Benzie County line in northwest Michigan, this property extends from the shores of Lake Michigan approximately five miles inland. Arcadia Dunes, which is a C.S. Mott Preserve, contains sand dunes, wetlands, forested property, and now a large contiguous native grassland. It truly offers unique, scenic plant and wildlife viewing opportunities.

Partners Biologist Heather Rawlings with the Alpena Fish and Wildlife Conservation Office (FWCO) toured the maturing native grassland with Conservancy Ecologist Angie Lucas on September 24, 2014. The Partners Program in conjunction with the Conservancy and Designs by Nature has funded 62 acres of the native grasslands, providing Michigan genotype grasses and forbs. These



Sumac interspersed with Little bluestem make the grassland a colorful place to visit during the fall season. Credit: USFWS



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“If You Build it They Will Come”

BY JORGE BUENING, GENOA NFH

In the case of the Genoa National Fish Hatchery (NFH) this famous line from the movie Field of Dreams (which was filmed in Iowa) should read that “if you stock them they will prosper”. At least that is the case for the federally endangered Higgins' eye pearlymussel in the Iowa River.

As part of management plans developed by the US Fish & Wildlife Service, US Army Corps of Engineers, Iowa Department of Natural Resources (DNR), Minnesota DNR, and other organizations Higgins' eye reintroduction has been possible. These plans target the goal of reintroducing the Higgins' eye into waterways that were part of its' historic range but are free from the threat of zebra mussels. This led to the stocking of mussel inoculated host fish into three of Iowa's rivers: the Cedar, Iowa, and Wapsipinicon. Of these we have found Higgins' eye in both the Iowa and Wapsipinicon. Now the mussels are old enough to be sexually mature and that is what we saw this year.



A federally endangered Higgins' eye pearlymussel. Credit: USFWS

The annual Iowa DNR mussel blitz was held on the Iowa River near Iowa City during mid-August. During the blitz agency personnel and volunteers worked together to search for mussels at over 60 monitoring sites stretching over 20 river miles. During the blitz three adult Higgins' eye were collected and they were brooding glochidia, basically ready to infest other host fish. If natural reproduction and recruitment can be established and carry the population into future generations, we will be able to say that our reintroduction efforts are a complete success. It has been through multiple stocking efforts and many hours of surveys that these observations are possible. Stories like these truly give us purpose and allow our dreams to take flight. Thanks to all our recovery partners for all the hard work.



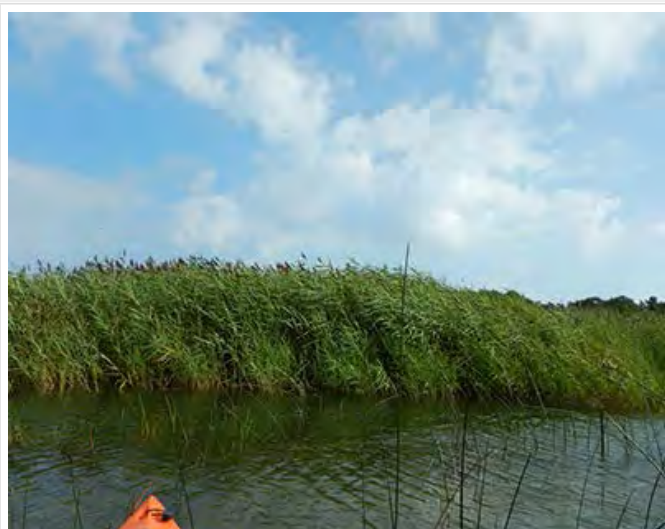
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Service's Partners for Fish and Wildlife Program and Lafarge North America to Fight Invasive Species

BY HEATHER RAWLINGS, ALPENA FWCO



A large stand of phragmites, located during the inventory. The phragmites is scheduled for treatment during October 2014. Credit: USFWS

documented slightly more than 20 acres of phragmites in 68 locations. This inventory completed the work started by students that participated in the Great Lakes Natural Resources Camp in July 2014.

Plants that were located are scheduled to be chemically treated in fall 2014 by contractor JFNew. Follow-up treatments will occur in future years as necessary. The amount of treatment will be contingent on the method of treatment recommended and the amount of funding available. Funding is in place for the treatment with a 50:50 cost share between Lafarge North America and the Service's Partners for Fish and Wildlife Program.

The removal of the invasive phragmites will allow for native cattails and emergent wetland species to repopulate the area, providing habitat for nearshore and juvenile fish, reptiles, amphibians and birds dependent on native wetland habitats.

Lafarge North America - Presque Isle Quarry, a limestone quarry located in Presque Isle County, Michigan is working with the U.S. Fish and Wildlife Service (Service) Partners for Fish and Wildlife Program and Huron Pines (a non-profit conservation organization) to eradicate a persistent invasive species on their property. Phragmites australis, known by most as phragmites, is an invasive wetland grass that, once established, reproduces quickly and out-competes native wetland vegetation along riparian areas and coastlines. Phragmites reproduces through rhizomes (horizontal stems growing underground). These rhizomes can grow greater than 60 feet and produce roots and stalks at regularly spaced intervals. The quarry has a thriving population of phragmites growing along the riparian corridor of the Bell River. This short river is the outflow of the quarry's considerable 5000 acres of wetland and bedrock habitat.

Huron Pines Americorps members and Service Biologist Heather Rawlings completed an inventory of phragmites and purple loosestrife on the Lafarge property late this summer. The inventory



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A Season of Cooperation in the Fight against Asian Carp

BY JEREMIAH DAVIS, CARTERVILLE FWCO

This field season crews from the US Fish and Wildlife Service (USFWS) Carterville Fish and Wildlife Conservation Office (FWCO) teamed up with multiple state and federal partners in the fight against Asian carp. At the Carterville FWCO, all staff understand the importance of working collaboratively with the many researchers and managers that are battling these invasive species. That understanding led to some great opportunities for collaboration, cooperation, and outright friendships this field season. This ultimately helped everyone who cares about stopping the spread of Asian carp to gain more knowledge and have more tools at their disposal.

Beginning in May, a large Asian carp die off took place on the Tennessee and Cumberland rivers below Kentucky Lake and Lake Barkley. Fighting the smell that's not fit for words, a crew of biologists and technicians from Carterville FWCO came out to assist Paul Wilkes, Aquatic Nuisance Species Biologist from the Kentucky Department of Fish and Wildlife Resources, Kevin Irons, Aquatic Nuisance Species Lead from the Illinois Department of Natural resources (DNR), and a team of fish health experts from the USFWS Warm Springs Fish Health Center. The goal was to identify the reason for the die-off with hopes of turning this problem back against itself and using the fish kill culprit to decimate other populations. The jury is still out on what caused the die-off, but we are working in another partnership with US Geological Survey (USGS) scientists to solve the mystery. The field season was off to a great collaborative start.



Technicians from Carterville FWCO and Kentucky Department of Fish and Wildlife Resources work together to perform a necropsy on a silver carp at a fish kill below Kentucky Lake Dam. Credit: Paul Wilkes, Kentucky Department of Fish and Wildlife Resources



Crew from Columbia FWCO prepare for Paupier trawling to sample fish over the electric dispersal barrier while DIDSON acoustic video footage is being collected from a fixed platform. Credit: Jeremiah J. Davis, USFWS

June took Fish Biologist Jeff Stewart and crew from the Carterville FWCO to Ohio where they teamed up with the Ohio DNR to sample the serene waters of the Muskingum River for environmental DNA (eDNA). eDNA is DNA found in the environment that comes from target organisms that may hide under the noses of biologists using less sensitive detection tools. These efforts were followed up by a week of intensive electrofishing looking for any sign of the invasive fish in new areas. Fortunately, no signs of Asian Carp were found in the Muskingum watershed.

Partnerships with state agencies continued in July as efforts to find traces of Asian carp DNA even farther up the Ohio River system took place. Jeff and crew worked closely this time with the friendly field staff from the Ohio DNR as well as the Pennsylvania Fish and Boat Commission, the West Virginia Division of Natural Resources, and a crew from USFWS Northeast Region to sample the waters of the upper Ohio for eDNA.

During August Carterville FWCO was again called to provide support for a cooperative effort. The USGS Upper Midwest Environmental Science Center, USGS Great Lakes Science Center, USGS Columbia Environmental Research lab, Southern Illinois University, and Carterville FWCO teamed up to perform

testing and evaluation of seismic water cannon technology. These boisterous weapons in the fight against Asian carp are designed to affect the distribution and behavior of the nuisance fish. Testing took place in Hanson Materials Services gravel pits in Morris, Illinois. The seismic water cannons emit a strong pressure wave through the water that has been shown to repel Asian carp. Carterville's role in the testing was to perform mobile split beam hydroacoustic surveys of Asian carp distribution and abundance at the study site. The data collected on our aptly named survey boat- "The Carpe See Um"- was instrumental in determining the effectiveness of the seismic water gun technology, allowing researchers to understand where the fish were located in the study area before and after the water cannons began firing.

In September, Assistant Project Leader Sam Finney and Fish Biologist Jeremiah Davis teamed up with crews from the La

Crosse and Columbia FWCO's as well as the US Army Corp of Engineers (USACE), Illinois DNR, and contracted commercial fishermen to intensively monitor the Chicago Area Waterway System for Asian carp using a combination of electrofishing and gill netting. During the course of the work no Asian carp were captured or observed, in spite of hours of electrofishing and netting in the pungent canal water.

In October, biologists from Carterville deployed their dual fixed DIDSON fish observation system at the electric dispersal barrier in Romeoville, Illinois to make observations of fish behavior near the electric barrier. This work was once again a collaborative team effort with fish sampling, electrical testing, and data collection support coming from the Columbia FWCO, the USACE-Chicago District, and the USACE- Champaign Construction Engineering Research Laboratory.

The DIDSON fish observation system is unique because it uses an array of acoustic beams to produce video like images of fish even in the murky water of the Chicago Sanitary and Shipping Canal. The project was also unique because of the level of cooperation and collaboration required to get the job done. Working in a noisy environment, with the danger of intense electrical fields and water nearby is never easy, but bringing together the skills and abilities of multiple partners once again made for a smooth running operation.

It has been another busy field season for the Carterville FWCO on the front lines of the effort to control Asian carp. Once again, it has been a successful year of fighting because of the many strong working relationships that have been developed. We appreciate the ideas that have been shared, and knowing that as we move forward, we are all in this fight together.

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Carterville FWCO Leads Field Sampling with Future Biologists

BY JEFF STEWART, CARTERVILLE FWCO



Fish Biologist Jeff Stewart explains life history attributes of captured fish to Ball State University students. Credit: Allison Lenaerts, USFWS

In early October Fish Biologist Jeff Stewart and Biological Science Technician Allison Lenaerts of the Carterville Fish and Wildlife Conservation Office (FWCO) led a stream fish sampling and identification field trip for the Wildlife Biology classes from Ball State University in Muncie, Indiana. This was the fourth year that Stewart has led the fish sampling module in a weekend field trip that Associate Professor Dr. Tim Carter presents each year. Carter introduces his students to many aspects of wildlife biology including sampling techniques and identification of mammals, reptiles, amphibians, and birds as well as the fish module.

We met the caravan of students and their professor at Green Creek in Union County, in southern Illinois. This access on Green Creek is a popular spot for field trips with lots of folks because it has safe and easy access and is a diverse and fairly healthy upland stream.

I say
"fairly
healthy"
because



Ball State University Wildlife Biology students take time for a group photo. Credit: Allison Lenaerts, USFWS

during the course of the last two years we have discovered that this stream and indeed most of the Clear Creek system has been invaded by a non-native minnow species called the Bleeding Shiner. Bleeding Shiners are widespread and common in adjacent Missouri upland streams but are not previously known to reproduce in Illinois waters. In 2013 we collected about 20 Bleeding Shiner specimens at this same site. This year there are hundreds, they appear to have become the most abundant fish species next to the Central Stoneroller in Green Creek. This is of course an important real world lesson for the students. It is unclear at this time what impact this non-native minnow species will have on the fish community of this system but as with most introduced species the effects on the native species are likely to be negative.



Carterville FWCO's Jeff Stewart explains seining techniques to students. Credit: Allison Lenaerts, USFWS

Fortunately we were able to capture most of the expected native fish species as well, and the students enjoyed taking turns seining and picking fish and invertebrates from the net. We presented both the physical and the life history characteristics of the fish species that were caught. The students were able to experience several different seining techniques and observed numerous native fish species. As usual the Ball State students had many compelling questions about the fish that were captured and we look forward to doing it again next year with a new batch of

aspiring wildlife biologists.



Non-native Bleeding Shiners captured in Green Creek. Credit: Allison Lenaerts, USFWS



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What's Happening at Neosho NFH

BY BRUCE HALLMAN, NEOSHO NFH



The beautiful grounds of the Historic Neosho National Fish Hatchery.
Credit: Bruce Hallman, USFWS

Because we are surrounded by a community, everything we do is closely examined by the public. Visitors always ask, "What's wrong?" when they see the emptied ponds, or when they don't see fish in the water. While it is useful to explain our normal annual activities, it is always better to be able to show visitors the fish and to let them feed the fish with us. Kids smile from ear to ear to see the fish flop and splash as they fight for the floating food pellets. Young parents frequently tell us how they remember coming as a child and how they want to share that with their own children.

Mussels...

Our mussel pond has been showing much promise lately for that program. The hatchery received some juvenile non-endangered fatmucket mussels, this summer and fall and they have produced the greatest growth we've ever seen. Our "flopsy" system is pumping water through the mollusk enclosure and the pond water has had a thriving zooplankton population to feed them well. We are currently looking for bigger and better opportunities to take this to the next level with restoring and repopulating endangered mussels, perhaps the Neosho mucket, and their host fish, the freshwater drum.

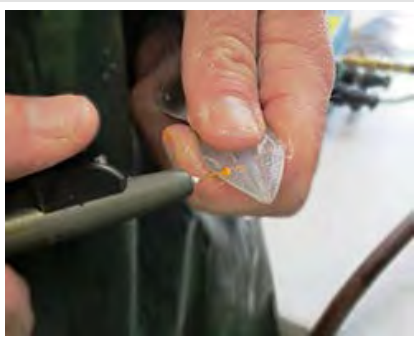
Autumn is a beautiful time of year here in Neosho, Missouri. As of mid-October, the maples are in full color as are some other vibrant species. It is a time of crisp mornings that produce stunning scenes of foggy mist from our ponds. And with the summer heat behind us, the sunny afternoons are a delight to enjoy and take in the outdoor sights.

Rainbows...

This is the time of year when we are beginning a new cycle for our rainbow trout program. We get eggs in five times a year, mostly from Ennis National Fish Hatchery (NFH) in Montana, and the first batch arrived in August. A second lot came in late September, and our next is scheduled for November. Just last week our summer pond maintenance came to an end as the empty basins were filled with spring water. It won't be long before some 7-inch trout move into those ponds as they continue to grow to our targeted size.



Dedicated partners work to get pallid sturgeon fry ready for departure to their new home, the Missouri River. Credit: Bruce Hallman, USFWS



An elastomer tag is applied to the snout of a pallid sturgeon at Neosho NFH. Credit: Bruce Hallman, USFWS

Pallids...

September was a busy month for us and our other big program – working with the federally endangered pallid sturgeon. May is the month for spawning these majestic creatures, and even though our female sturgeon released no eggs this year, our state partners at the Blind Pony State Fish Hatchery had great success. We ended up receiving half of their egg production, about 15,000 eggs. Those eggs turned into a bumper crop of tiny pallids. As a result, the two hatcheries had too many little sturgeon to raise for the normal 12 or more months – but this was a problem, we could live with! The Endangered Species team decided to stock out a majority of the four to five month old larval sturgeon, and keep about 3500 here for our traditional yearlong rearing period. September was made even busier because the pallid fry (about 20,000) had to be marked and tagged before release into the Missouri River. Due to their small size, each fish had a particular scute removed with a scalpel and was also injected with a colored elastomer tag on their snout. This process took most of a week's time, and another week to distribute the young pallids to their new homes.

Topeka shiners...

This fall also has a brand new project developing. We are in process of getting raceways ready to house our latest endangered fish species – the Topeka shiner. Officially called *Notropis topeka*, it appears as a small minnow with an olive-yellow back, dark-edged scales and silvery-white sides and belly. A dark stripe runs along their sides and extends on to their heads – with a total fish length of just a few inches. Another state hatchery has been working to breed and reintroduce these minnows, and they are now passing this baton on to us. We had two raceway series that have been unused for about a dozen years. They were previously used to house brown trout brood stock, but now will become home to these endangered minnows. To prepare for their arrival, any existing leaks were patched and all screens repaired. We also enclosed the raceway with a fine mesh fencing to help protect them from birds, humans and other would-be predators. It is known that Topeka shiners like to share nests with the orangespotted sunfish, letting the sunfish tend to the nesting site for them. Part of our ongoing



The future is bright for recovery of their species. Credit: Bruce Hallman, USFWS

learning curve will include these other fish and giving them a variety of nesting sites to choose from. We have constructed nesting boxes that are set at different depths for the fish to use. After a spawning season or two, we can evaluate which sites were most successfully utilized, and continue to develop our culture techniques for this important species. Even though routine seems to be the usual word of the day, there is still some pretty exciting and innovative work going on here. We are proud of our history – being the oldest operating federal fish hatchery in the country – but we are also pushing forward to break new ground and help our agency to fulfill its mission of conserving, protecting and enhancing fish and other aquatic life for the benefit of everyone.

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Fish Tails

Articles submitted by field staff that do not appear as a feature within Fish Lines. These articles provide examples of the diverse work that is performed on behalf of aquatic resources.

Congressman Kind's Staff Natural Resource Aid Visits Genoa NFH

BY DOUG ALOISI, GENOA NFH

Natalie Mamerow, Washington Office Legislative Assistant for Representative Kind's 3rd district of Wisconsin toured the Genoa National Fish Hatchery (NFH) this September. District visits are used to gather information and stay informed with the people and federal activities ongoing in the home district, and we were glad to have the opportunity to show Natalie ongoing U.S. Fish and Wildlife conservation actions at the Genoa NFH. Some of the activities that Natalie witnessed were quantitative surveys of an active mussel bed conducted by hatchery dive team members and mussel biologists in Pool 9 of the Upper Mississippi River, and ongoing lake sturgeon tagging operations.

Over 70,000 lake sturgeon fingerlings were tagged for fall release mainly with volunteer labor, and Natalie got to tag a number of them herself! She was also shown the hatchery's coaster brook trout restoration propagation, which will overwinter and grow at the hatchery to be released in spring of 2015. She also toured the station's offsite mussel propagation trailer housed at the Corps of Engineers (Corps) Blackhawk Park, adjacent to the Mississippi River. It is strategically located at the Corps facility to take advantage of the optimal growing conditions of Mississippi River water in regards to temperature and natural food supplies that the River provides. It was a pleasure to have Natalie tour the facility and observe firsthand what happens on any given workday on a beautiful fall day at Genoa NFH.

Sand River Estuary, Lake Superior - Revisited for Ruffe

BY GARY CZYPINSKI, ASHLAND FWCO

The Ashland Fish and Wildlife Conservation Office (FWCO) provided fish collection assistance for a genetics study being conducted by Dr. Carol A. Stepien, Director of the Lake Erie Center, University of Toledo, Oregon, and Ohio. Dr. Stepien is examining the genetic patterns of selected established invasive Eurasian ruffe populations in the Upper Great Lakes. He wants to determine whether or not the genetic composition of the original ruffe populations has changed, whether relationships between populations have changed, and whether ruffe from different locations in Eurasia have been introduced and established. One ruffe population of particular interest is located in the Sand River estuary, a tributary to Lake Superior located in northern Wisconsin, and lying within the Apostle Islands National Lakeshore, National Park Service (NPS). The NPS is also interested in the current status of ruffe in the Sand River estuary in relation to the population status when established during the mid-1990's.

With support from NPS, Ashland FWCO staff surveyed the Sand River estuary with bottom trawl gear. A total of six tows were completed, which covered the entire estuary. Two young-of-the-year ruffe were captured which confirms continued reproduction in the system. The catch per minute bottom trawl in 2014 was 0.08 compared to 0.27 in 1992. The low capture rates are likely due to the sensitivity of ruffe to light levels. Ruffe prefer low light habitats, and low light areas are primarily associated with deeper or turbid water. In 1992, the average trawling depth in the estuary was 1.9 meters, while in 2014 the average trawling depth was 1.2 meters.

Alpena FWCO Conducts 2014 Fishery Independent Lake Whitefish Survey in Northern Lake Huron

BY ADAM KOWALSKI, ALPENA FWCO

During July and August, staff from the Alpena Fish and Wildlife Conservation Office (FWCO) and volunteers conducted the annual fishery independent lake whitefish survey in 1836 Treaty waters of northern Lake Huron. The purpose of this survey is to collect fishery independent abundance and biological data on lake whitefish stocks in treaty waters for use in statistical catch-at-age population models that are updated annually to determine harvest regulations for commercial fisheries in 1836 Treaty waters of the Great Lakes.

During the survey, 24 variable mesh gill nets (two to six inch) were set at randomly selected sites in lake whitefish management unit WFH 04 (Hammond Bay to Presque Isle) and lake whitefish management unit WFH 05 (Presque Isle to Alpena). All whitefish and lake trout collected were measured, weighed, sexed, assessed for maturity and visceral fat content, and checked

for sea lamprey wounds, fin clips, and tags. Scales and otoliths were collected for age determination. Similar biological data were collected from non-target species. Four lake whitefish were collected from unit WFH04 and one was collected from unit WFH05.

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Midwest Region Fisheries Divisions

National Fish Hatcheries

The Region's National Fish Hatcheries (NFH) focus on native species recovery and restoration. Primary species include: lake trout, endangered pallid sturgeon, and endangered, threatened, and native mussels. Other major programs include coaster brook trout and lake sturgeon restoration, fulfilling tribal trust responsibilities for native aquatic species, and cost reimbursed rainbow trout production for recreational fishing. Hatcheries also provide technical assistance to other agencies, provide fish and eggs for research, and develop and maintain brood stocks of various species and strains.



Fish and Wildlife Conservation Offices

Fish and Wildlife Conservation Offices (FWCO) conduct assessments of fish populations to guide management decisions, play a key role in targeting and implementing native fish and habitat restoration programs; perform key monitoring and control activities related to aquatic invasive species; survey and evaluate aquatic habitats to identify restoration/rehabilitation opportunities; work with private land owners, states, local governments and watershed organizations to complete aquatic habitat restoration projects under the Service's National Fish Passage Program, National Fish Habitat Partnerships, Partners for Fish and Wildlife and the Great Lakes Coastal Programs; provide coordination and technical assistance toward the management of interjurisdictional fisheries; maintain and operate several key interagency fisheries databases; provide technical expertise to other Service programs addressing contaminants, endangered species, federal project review and hydro-power operation and relicensing; evaluate and manage fisheries on Service lands; and, provide technical support to 38 Native American tribal governments and treaty authorities.

Sea Lamprey Biological Stations

The Fish and Wildlife Service is the United States Agent for sea lamprey control, with two Biological Stations assessing and managing sea lamprey populations throughout the Great Lakes. The Great Lakes Fishery Commission administers the Sea Lamprey Management Program, with funding provided through the U.S. Department of State, U.S. Department of the Interior, and Fisheries and Oceans Canada.

Fish Health Center

The Fish Health Center provides specialized fish health evaluation and diagnostic services to federal, state and tribal hatcheries in the region; conducts extensive monitoring and evaluation of wild fish health; examines and certifies the health of captive hatchery stocks; and, performs a wide range of special services helping to coordinate fishery program offices and partner organizations. The Whitney Genetics Lab serves as a leading edge genetics laboratory and conducts environmental DNA (eDNA) sample processing for early detection of invasive species.

Whitney Genetics Lab

The Whitney Genetics lab provides environmental DNA (eDNA) surveillance for the early detection of invasive Silver and Bighead carp as part of the Asian Carp Regional Coordinating Committee's plans to detect, monitor, and respond to the threat of invasive carp in the Great Lakes. The lab also provides analysis for determining the ploidy of wild-caught Black and Grass carp, two more invasive carp species.



U.S. Fish & Wildlife Service

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